

IN THE SPECIFICATION

Please amend the title of the above-identified application as follows:

~~NAVIGATION INFORMATION OVERLAY ONTO ULTRASOUND IMAGERY~~

METHOD OF DETECTING ORGAN MATTER SHIFT IN A PATIENT

Please add the following paragraph below the title:

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a divisional of U.S. Serial No. 10/047,927, filed January 14, 2002, now pending, which is a continuation of U.S. Serial No. 09/428,720, filed October 28, 1999, now U.S. Patent No. 6,379,302, issued April 30, 2002. The disclosures of the above applications and/or patents are incorporated herein by reference.

Please replace the paragraph on Page 13, beginning with line 3, of the specification as follows:

Calibration of image guided surgical devices is known in the art. In addition, a ~~pending U.S. Patent Application~~ U.S. Patent No. 6,470,207, issued October 22, 2002, assigned to the same assignee, ~~S/No. 09/274,972 filed on March 23, 1999~~ describes calibration in the context of a navigational guidance system using x-rays, which is incorporated by reference. In general, calibration consists of using a calibration device, which may contain objects, such as rows and columns of wires, inside a frame, that can be detected by an ultrasound machine. A user scans the calibration device with the ultrasound probe 115 and the attached localizer 116. The ultrasound navigation system with the help of software running on the computer 120 locates the intersection of wires,

which appear as dots in the scanned image of the calibration device. The computer 120 then calculates a transformation between these dots and the actual intersection of the wires that formed a dot located on the actual calibration device.

Please replace the Paragraph on page 14, beginning with line 6 of the specification as follows:

However, before overlaying the three-dimensional image with a graphical representation of a surgical instrument, the correspondence between points in the three-dimensional image and points in the patient's reference frame may need to be determined in step 203, as shown in Fig. 2. The process to achieve this correspondence is known as registration of the image. One method for performing image registration is described in the previously mentioned publications to Bucholz. Another method for performing image registration is described in ~~pending U.S. Patent Application~~ U.S. Patent No. 6,470,207, issued October 22, 2002, to the same assignee, ~~S/No. 09/274,972 filed on March 23, 1999.~~

Please replace the Paragraph on page 20, beginning with line 4 of the specification as follows:

Correlation involves performing registration, localization, and calibration. Registration, as discussed earlier, involves determining the correspondence between points in the three-dimensional image and points in the patient's reference frame. One method for performing image registration is described in the previously mentioned publications to Bucholz. Another method for performing image registration is described

in a ~~pending U.S. Patent Application~~ U.S. Patent No. 6,470,207, issued October 22, 2002, to the same assignee, ~~S/No. 09/274,972 filed on March 23, 1999~~.

Please replace the Paragraph on page 21, beginning with line 14 of the specification as follows:

As discussed earlier, calibration of image guided surgical devices is known in the art. For example, the previously mentioned Bucholz references describe calibration. In addition, ~~a pending U.S. Patent Application~~ U.S. Patent No. 6,470,207, issued October 22, 2002, assigned to the same assignee, ~~S/No. 09/274,972 filed on March 23, 1999~~ describes calibration in the context of a navigational guidance system using x-rays. In general calibration consists of using a calibration device, which may contain objects, such as rows and columns of wires inside a frame, that can be detected by an ultrasound machine. A user scans the calibration device with the ultrasound probe 115 and the attached localizer 116. The ultrasound navigation system with the help of software running on the computer 120 locates the intersection of wires, which appear as dots in the scanned image of the calibration device. The computer 120 then calculates a transformation between these dots and the actual intersection of the wires that formed a dot located on the actual calibration device.